Los Alamos National Laboratory

Integrated Safety Management*

Approved: _____(Signed 11/27/96)_____

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I. Introduction

This document describes Los Alamos National Laboratory's (LANL, Laboratory) Integrated Safety Management (ISM), a framework that supports workers in fulfilling their safety responsibilities. The purpose of the document is to describe ISM and how it will support work that meets the Laboratory's strategic goal, "Safety First." Work is defined broadly to include all Laboratory activities resulting from employment of the workforce. ISM is a comprehensive systematic approach toward integrating safety* with work, setting safety expectations for the entire Laboratory workforce. ISM as described in this document is official Laboratory policy and is to be followed by all members of the workforce.

Ultimately, safety depends upon the attitudes and behaviors of every member of the Laboratory workforce. In a safe system, each worker must be fully conscious of work hazards and have confidence in the controls to mitigate them. In support of every individual's responsibility for working safely, the Laboratory must provide a framework that promotes safe behaviors and provides direction, tools, and knowledge for safe work.

As an integral part of the work, safety is not simply an add-on independent of work processes. Interactions among the different elements that the safety system comprises—standards, safe-work processes, training, authorization, assessments, and budgets—must be understood and integrated. Additionally, one must understand the complex interrelationships that exist between the Laboratory as an institution, the separate facilities within it, and the specific activities within these facilities. One must also understand the basic relationships between a management system and individual behaviors. ISM takes all these relationships into account, enabling each individual to understand the unique contribution one can make toward Laboratory safety.

Line management is ultimately responsible and accountable for safety and, therefore, for establishing, implementing, and maintaining ISM. Every member of the workforce shares responsibility for effective ISM at the Laboratory. The Laboratory Director has charged the Operations Working Group (OWG), a subgroup of the Laboratory Leadership Council (LLC), with establishing, and maintaining ISM. The Environment, Safety, and Health (ESH) Division supports OWG to coordinate and facilitate establishing ISM.

The entire Laboratory workforce is expected to provide input and constructive criticism to continually improve ISM. Such comments should be submitted, in writing, to the ESH Division Office or the OWG. Changes to this document are subject to the approval of the ISMS Change Control Board comprising Laboratory and DOE representatives.

This document comprises several parts: first, is the Laboratory's statement of commitment to ES&H; second, this introduction. Section II is a description of ISM and Section III provides a discussion of resource allocations and budgets for safety.

* Throughout this document, the term "safety" is synonymous with environment, safety, and health (ES&H) and used broadly in reference to the protection of the worker, the public, the environment, and property.

II. ISM Description

A. FRAMEWORK

This section describes the objectives, guiding principles, core functions, and approach to tailoring that provide the framework for ISM.

Objectives

The Laboratory's safety strategic goal is "Safety First"—to have no workplace deaths or serious injuries and maintain a lost-time injury record that ranks best among comparable industries.

The objective of ISM throughout the Department of Energy (DOE) and the Laboratory is to systematically integrate safety management into work practices at all levels so that missions are accomplished while protecting the public, the worker, the environment, and property. Safety should involve every worker and be a seamless part of planning and conducting all work and from the inception of a mission through its completion.

Guiding Principles

DOE and its contractors have agreed upon the following seven fundamental principles that provide overall direction and guidance for instituting ISM throughout the DOE community.

1) Safety-Responsible Line Management

Line management is ultimately responsible for the protection of workers, the public, the environment, and property. Every member of the workforce shares this responsibility, which extends in an unbroken chain from external sponsors through the Director and to workers performing the work. Throughout this chain, safety shall be integral to decisions relating to the conduct of work, including resource allocation, planning, scheduling, and coordination. Section II-B provides additional details regarding line management responsibilities.

2) Clear Roles

The Laboratory establishes and maintains clear and unambiguous lines of authority, responsibility, and accountability are established and maintained so that everyone understands their individual and organizational safety roles. While the line managers are ultimately responsible for safety, different levels of the workforce and different organizations have differing roles that are defined. Section II-B provides additional details regarding safety roles.

3) Competence Commensurate with Responsibilities

Every member of the workforce will possess the experience, knowledge, skills, and abilities necessary to discharge their responsibilities. Supervisors must ensure that their workers are competent to safely accomplish the work. Worker competence is further addressed in section II-B and section III, *Resource Allocations*, in respect to implementation of safety expectations.

4) Balanced Priorities

Management effectively allocates resources to address safety, programmatic, and operational considerations. No work will be performed unless it can be performed safely. Whenever activities are planned and performed, adequate protection of the workers, the public, the environment, and property paramount. Work planning and resource allocation shall ensure through balance and priorities that the safety of any work is adequate, value-added, and reasonable. Safety will also be appropriately balanced relative to other competing or conflicting operating needs, such as safeguards and security. Resource allocation is further addressed in section III.

5) Identified Safety Standards and Requirements

Before work is performed, the associated hazards are evaluated and an agreed-upon set of safety standards, requirements, and/or controls (i.e., expectations) are established, which when properly implemented, ensure adequately that the workers, the public, the environment, and property are protected from adverse consequences. Establishing expectations is discussed in sections II-A–C.

6) Work-Tailored Hazard Controls

Administrative and engineered controls and other expectations to prevent and mitigate hazards are tailored to the work and associated hazards. The Laboratory's approach to tailoring of expectations is described later in this section.

7) Authorized Operation

The conditions and agreements to be satisfied for operations to be initiated and conducted are clearly established and agreed upon. Lower risk operations are authorized under the Prime Management and Operations (M&O) Contract between the University of California (UC) and the DOE. Higher risk operations are authorized under activity-/facility-specific authorization agreements between the Laboratory and DOE. Authorization is discussed further in section II-C.

Expectations

ISM involves three major and interdependent steps that manage “expectations,” which are broadly defined as standards, policies, requirements, regulations, procedures, and controls:

(1) Establish safety expectations,
(2) Implement safety expectations, and
(3) Ensure safety expectations are effectively established and implemented to meet the safety objective.

If any of these three steps are weak or omitted, then the entire safety system is ineffective.

Five core functions

Five core functions used throughout the DOE complex serve to support establishing, implementing, and ensuring safety expectations (see figure 1). The interrelationships among these five core functions and the three major steps are shown in figure 2.

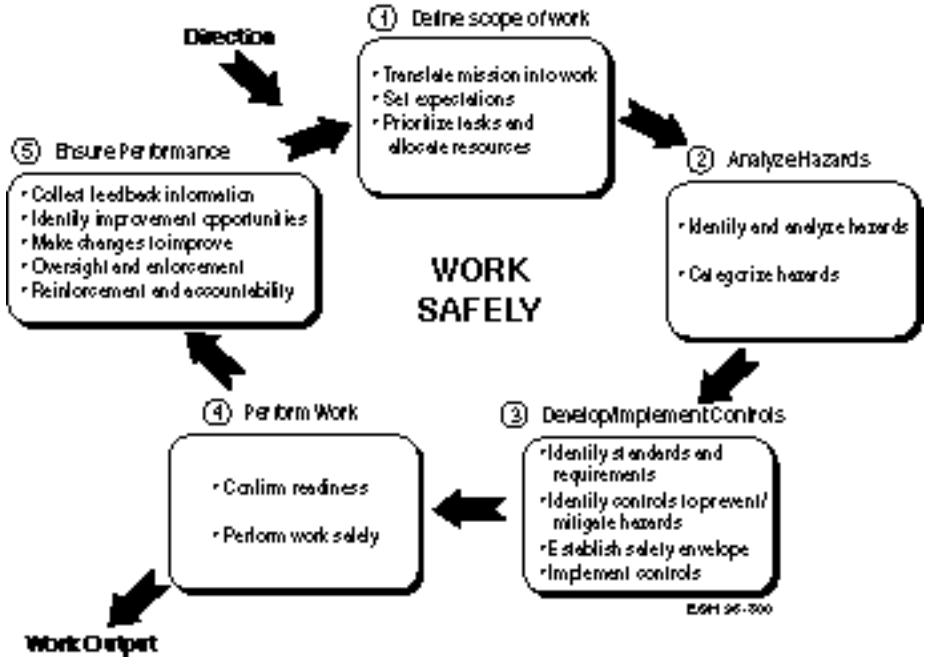

Figure 1. Laboratory ISM five core functions

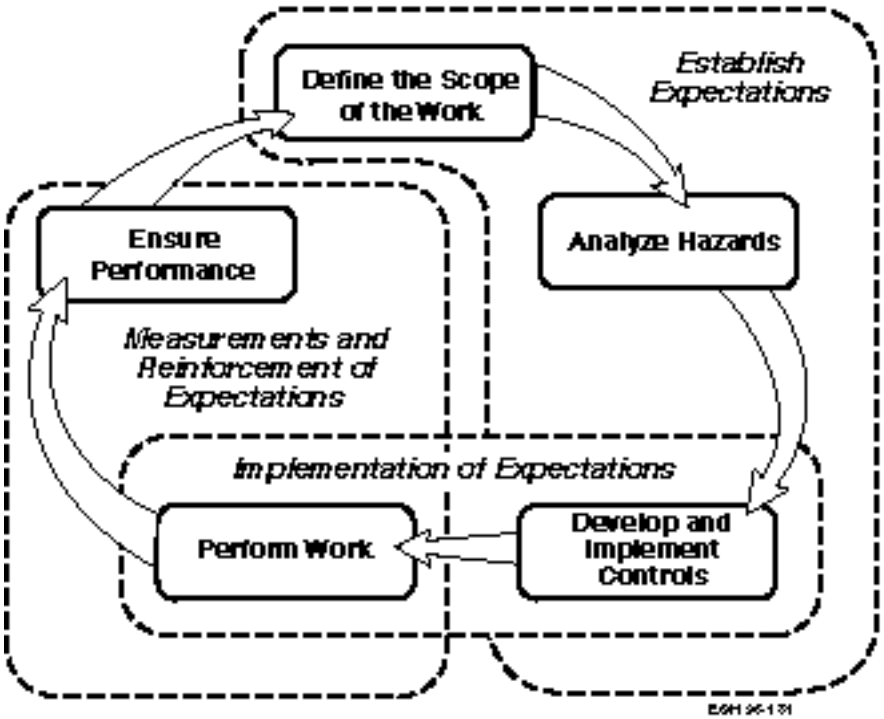

Figure 2. Relationship of five core functions to establishing, implementing, and ensuring expectations

The effectiveness of ISM resides in thorough understanding of the five core functions and their interrelationships and the development and application of Laboratory mechanisms (processes) that fulfill them.

Tailored and Consistent Safety Expectations

At the extremes of safety management, one of two things may happen: safety expectations can be tailored (graded) to specific facilities or activities; or expectations can be prescribed and administered consistently throughout the entire institution. One challenge of ISM is to strike a balance between the institution's expectations (i.e., one size fits all) and expectations tailored to unique activities by specific facilities.

Tailored safety expectations accomplish the following:

- provide flexibility and worker discretion that ensures expectations are effective, reasonable and practicable;
- allow for the exercise of judgment at the appropriate decision level, increase worker involvement and buy in; and balance competing needs.

The degree of rigor and documentation that establish safety expectations, the nature of controls, and the extent of ensured performance are commensurate with the work hazard level. In contrast, significant drivers and/or advantages to establishing institutionally consistent safety expectations may be economy-of-scale, regulatory requirements, industry lessons, liability, and other risk factors that may require consistency.

To achieve balance between the need for tailoring and the contrasting need for consistency, ISM applies the core safety functions at three different levels. It is important to note that all work takes place at the activity level, regardless of how safety management is applied.

- **Activity** level—focuses upon and applies to discrete work activities performed by individuals in the workplace (e.g., a maintenance or a research and development activity).
- **Facility** level—focuses upon and applies collectively, as appropriate, to the activities of a specific facility (e.g., TA-53 or the Chemical and Metallurgy Research building) or more broadly to a facility management unit (FMU). All Laboratory land and structures are part of designated FMUs.
- **Institution** level—focuses upon and applies collectively, as appropriate, to the activities of the Laboratory as a whole.

Figure 3 shows how core safety function are applied at each level within the Laboratory. As an institution, the Laboratory comprises many facilities; each facility, in turn, comprises all work activities conducted at the Laboratory. These nested relationships determine the institutional-level expectations that apply to all facilities and their activities. Institution-level expectations apply to all activities, i.e., there is one common set of expectations throughout the Laboratory. As necessary, a facility adds its own set of common expectations to those already established by the institution. Finally, an additional set of expectations may be necessarily activity-specific. Tailoring combines activity-, facility-, and institution-level expectations; the common institution- and/or facility-specific expectations provide consistency.

Figure 3 also shows that processes for determining institution- and facility-level expectations start from a roll up of all institution- and facility-level activities. Practically, this means that safety expectations at all three levels are based upon the work and its hazards and upon input from the workers.

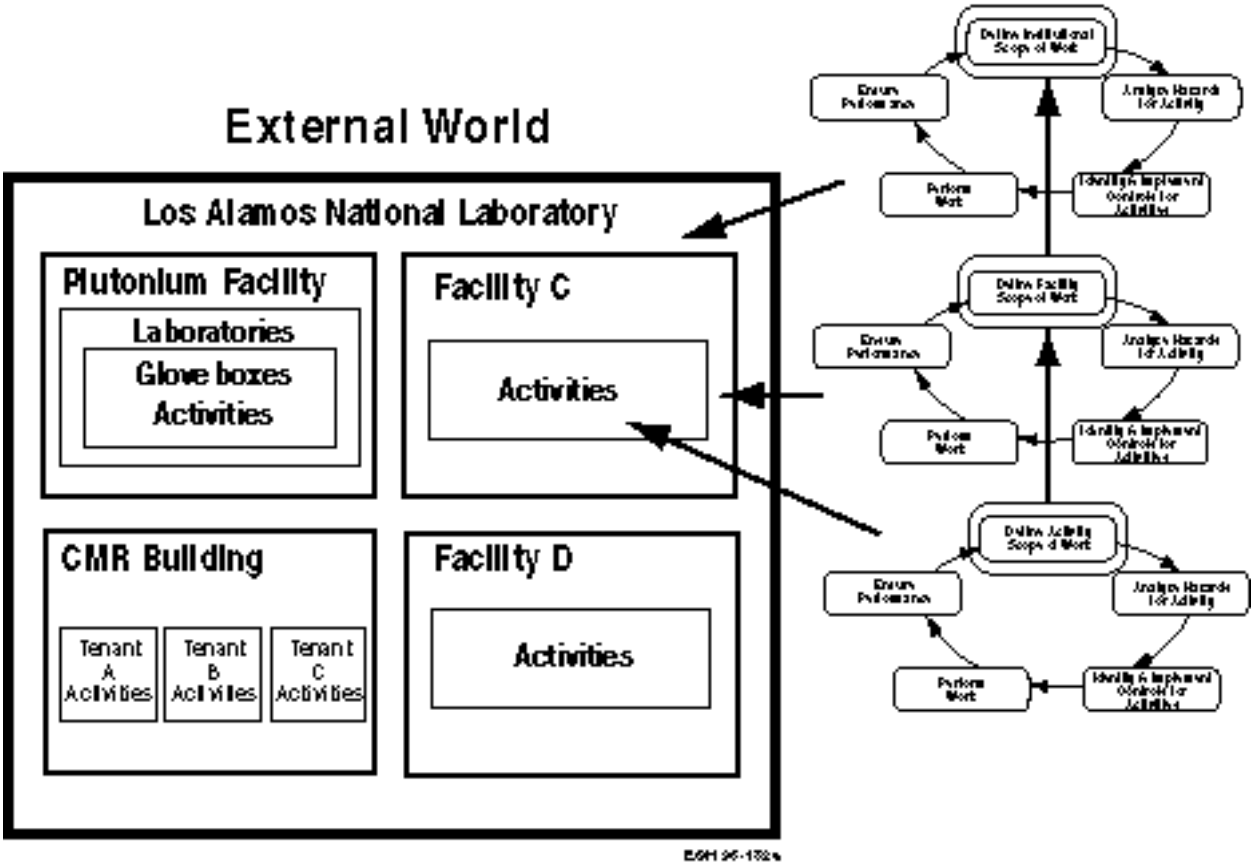

Figure 3. Core functions as they relate to the three levels (activity, facility, and institution)

The core functions in figure 3 can be rearranged as shown in figure 4, which depicts and summarizes the major characteristics and relationships of the Laboratory's ISM.

Figure 4 indicates that managing work safely at the Laboratory is accomplished through applying the five core functions at each of the three major levels. It shows that work activities and/or their roll up is the starting point at all three levels for analyzing and understanding hazards to determine the safety expectations or controls. This figure also depicts the applicability of facility and institutional expectations to individual work activities. A given activity must not only meet expectations derived from its activity-specific work definition and hazard analysis, but also those applicable expectations established for the institution and the facility in which the activity is conducted. In general, institutional and facility expectations prescribe specific processes at the activity level only when there exists compelling justification for facilitywide and or Laboratory-wide consistency.

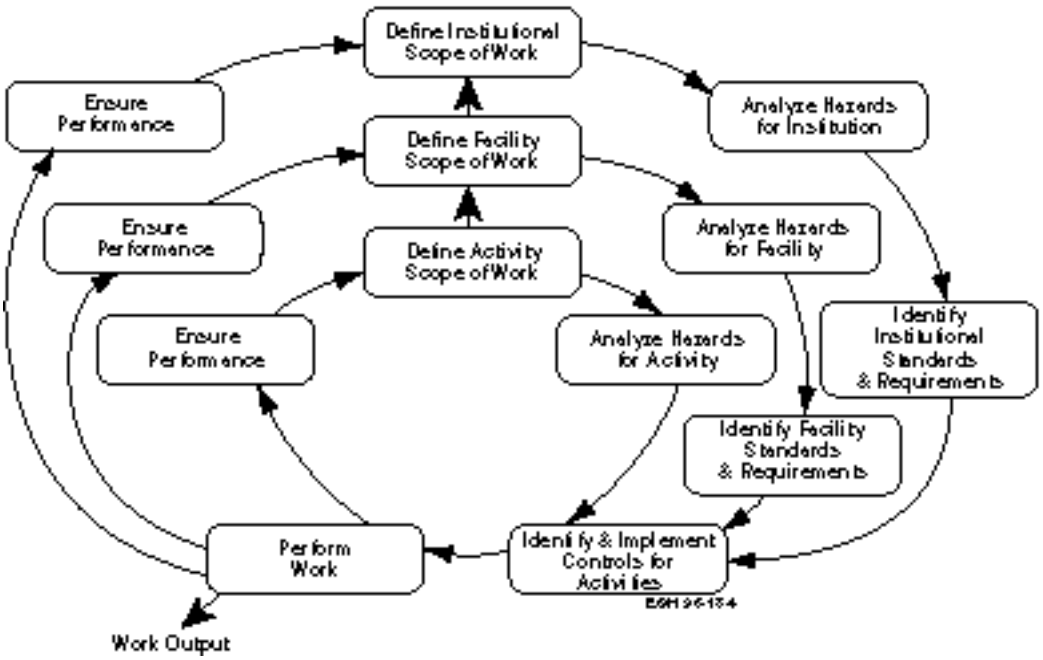

Figure 4. Core functions at the institutional, facility, and activity levels

The second guiding principle in the Laboratory's ES&H commitment covers unambiguous roles, responsibilities, and authorities. Most importantly:

- Line managers are responsible and accountable for safety;
- Program managers are responsible and accountable for providing funding;
- ESH Division is responsible and accountable for providing safety expertise, services, and process for establishing unambiguous institutional expectations.

Working safely requires each worker be accountable for their safety roles, responsibilities, and authorities as established within the Laboratory's organizational structure. These include roles and responsibilities for developing, coordinating, administering, and applying different safety processes at each of the three levels. Roles, responsibilities, and authorities at the Laboratory are usefully considered from two perspectives: the line management's functions and the organizational structure. Each individual at the Laboratory will have roles, responsibilities, and authorities in both perspectives. Figure 5 shows a chain of responsibility extending from individuals working on the floor through the Director and defines line management, supervision, and the workforce. This chain shows the collective responsibility for safe work.

The authority to manage all activities of the Laboratory is delegated from the UC President to the Laboratory Director. The Director retains ultimate responsibility but

delegates responsibilities for ensuring safe work to the deputy director and division, program, and office directors. These responsibilities are further delegated through the entire management and supervisory chain to individual members of the workforce.

In practice, various mechanisms, or processes, exist for fulfilling each of the core functions at the activity, facility, and institutional levels. These processes are described in Section II-C. of this document.

B. Roles and Authorities

In accordance with the second guiding principle, clear and unambiguous roles and authorities are established. **Actions 2, 3**

The safe conduct of work requires that each individual fulfill assigned safety roles and be accountable for various safety responsibilities associated with their roles.

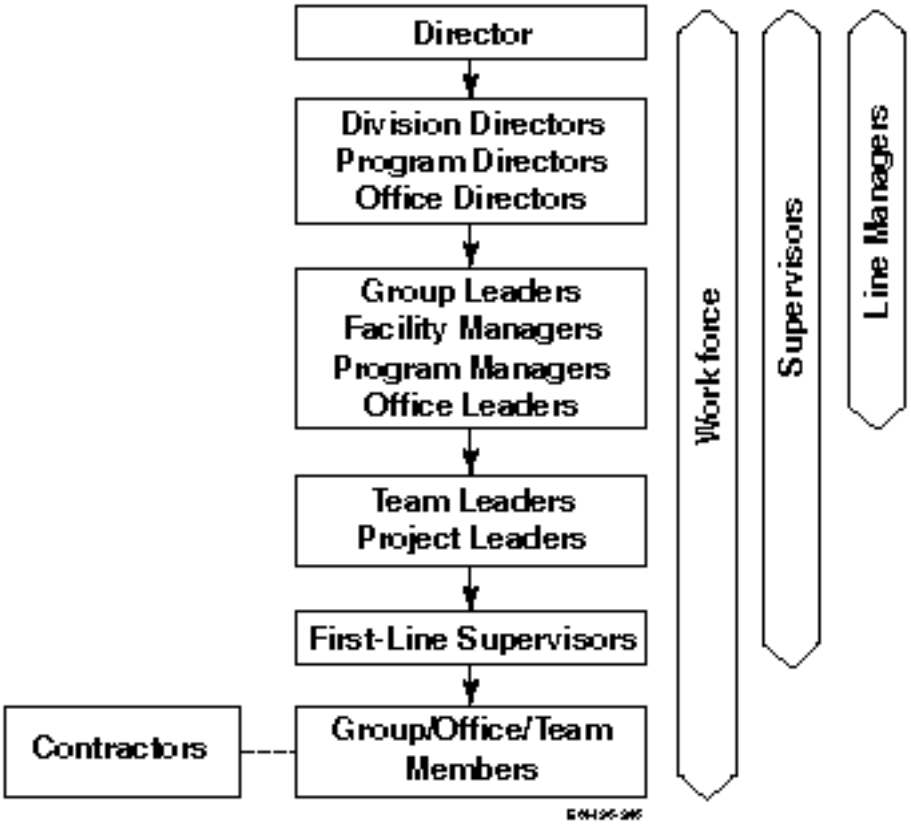

Figure 5. Chain of responsibility

Line Structure

The Workforce. The Laboratory workforce comprises all UC and contractor employees and includes line managers and supervisors. Working safely is every worker's responsibility and a condition for employment at the Laboratory. In the context of safety, the role of the workforce is to do all their work safely and to contribute to the safety of those around them. The workforce ensures that all hazardous work is covered by approved procedures and is done by trained personnel.

Responsibilities for which the workforce is held accountable include

- participate in defining the scope of their work, analyzing its hazards, and identifying and implementing appropriate expectations;
- inquire about and understand the hazards and safety requirements of their assignment;
- share responsibility with other workers for ensuring that safety expectations are met;
- take ownership of safety in the workplace;
- immediately correct safety-related problems or inform their supervisor of the problem if it exceeds the worker's resources, competence, or authorization level;
- warn fellow employees and visitors of known hazards, including defective equipment;
- know the emergency plans and procedures for their work areas;
- stop work when an operation is perceived to be imminently hazardous;
- track and correct safety issues;
- follow all activity, facility, and institutional safety requirements training and expectations; and
- participate in establishing, improving, and correcting if necessary, the Laboratory's safety expectations at the activity, facility, and institutional levels.

The workforce has authority and will be held accountable to perform work that is covered by safe work practices. They have the authority to stop work deemed to be unsafe (i.e., clear and present danger). Nonsupervisors are authorized to prepare but not approve activity level procedures and practices needed for the safe conduct of their work in accordance with institutional and facility expectations.

Managers and Supervisors. In their safety roles, managers and supervisors assume the same responsibilities as do the workforce. They also work with their own workforce, as well as with other organizations that either support or affect them, to fulfill the five core safety functions. Their role is to actively promote and model safe work practices, thereby demonstrating its value to the organization. Roles and responsibilities for which they are accountable include

Supervisors, team leaders, project leaders

- share all the responsibilities assigned to the workforce;
- plan, schedule, and prioritize resources to ensure work is conducted safely;
- ensure workers have the competence (i.e. have the necessary training, qualifications, and experience), tools, and other resources to work safely;
- make workers accountable, using timely positive and negative reinforcement to encourage appropriate safety behaviors;
- provide supportive environment for employees to raise safety issues and concerns;
- are aware of legal, regulatory, and contractual safety requirements applicable to their operations and facilities;
- engage the workforce in work planning, including developing and maintaining activity-level procedures and/or safety practices that apply to the work;
- maintain safe-working conditions and practices in those areas and with those workers they have authority over; and,
- ensure their employees, contract personnel, and visitors know and adhere to all applicable activity, facility, and institutional safety expectations.

Supervisors authorize their employees to work within Laboratory requirements. Supervisors are authorized to assign duties and require safety training, qualification, and/or certifications necessary to fulfill assigned duties. They are authorized to require, review, and help develop activity-level safety procedures and practices to work safely within the requirements of the Laboratory. Supervisors are authorized to recommend accountability actions. Supervisors are authorized to request representative participation in the development of group-level safety expectations that will apply to their work.

Group leaders, facility managers, program managers, office leaders

- assume all the responsibilities assigned to supervisors;
- authorize activities in their organization using safe work practices, as appropriate;
- provide a safe work environment;
- schedule, prioritize, and allocate adequate resources to work safely;
- establish the operational readiness of their organization's activities;
- approve and authorize safety procedures for hazardous operations in those facilities, groups, and activities under their supervision;
- are knowledgeable about their organization's performance relative to the UC Contract's Appendix F and other appropriate performance measures; and,
- provide knowledgeable workforce personnel to help develop and improve facility and institutional safety expectations.

In addition to their supervisory authorities, these managers are authorized to require readiness reviews of their operations and to require and review for approval activity-level safety procedures and practices to accomplish work safely within Laboratory requirements. They are authorized to approve accountability actions within requirements. Managers are authorized to request representative participation in the development of

activity, facility, and institutional safety expectations that apply to their organization's work.

Division directors, program directors, office directors

- assume all responsibilities assigned to group leaders;
- within their organizations and with the participation of their employees and other Laboratory management and resources, establish management processes for implementation and self-assessment of the Laboratory's safety commitment and other safety expectations at all Laboratory levels; and
- within their organizations and with the participation of their employees and other Laboratory management and resources, establish mechanisms within Laboratory policy for interacting with DOE, UC, and other external organizations in all matters concerning or affecting safety at the Laboratory.

In addition to the authorities listed above, directors have authority to establish and require management processes for safely accomplishing their mission. They are authorized to have representation in the development of activity, facility, and institutional expectations that apply to their organization's work. They have a joint authority for requiring and establishing mechanisms for interaction and negotiation with the DOE and other sponsors of work at the Laboratory, as well as with other contractors and subcontractors doing work at the Laboratory.

Laboratory Director

- the responsibilities listed above for division directors;
- own Laboratory safety goals;
- ensures that supportive environment exists for employees to raise safety issues and concerns; and
- ensures that Laboratory infrastructure for safely conducting work, including institutional, facility, and activity expectations, are developed, maintained, and implemented for all Laboratory work.

The Laboratory Director, in addition to the authorities listed above, has authority for requiring and establishing safety goals for the performance of the Laboratory.

Organizational Structure

In addition to workforce, supervisory, and management roles, programmatic-, facility- and institutional-level roles are assigned to facility management and institutional support organizations. These organizations are shown in figure 6, a simplified schematic of the Laboratory’s organizational structure.

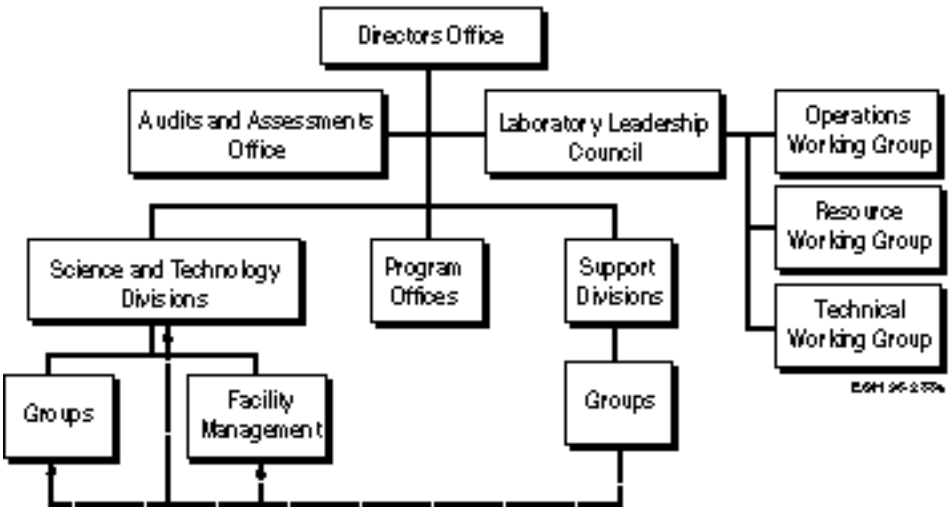

Figure 6. Simplified schematic of Laboratory organization

Programmatic. Programmatic organizations such as program offices, science and technology divisions, centers, and other research and development (R&D) organizations work safely.

Their associated roles and responsibilities include

- participate with facility- and institutional-level organizations to establish safety expectations covering their activities; and
- work with facility and institutional support organizations to ensure adequate resources and mechanisms exist for effective and efficient safety operations and conduct of work.

Programmatic organizations have the authority to be represented in the development of facility and institutional expectations that affect their work.

Facility Management. Owning division directors and, as appropriate, their supporting facility management teams, provide essential and negotiated infrastructure in support of facility tenants. They also help define the safety envelopes of facilities in which Laboratory activities are performed. They have the overall authority and responsibility to develop a facility-specific safety management system that complies with applicable statutory and Laboratory requirements. Their roles include

- establish, document, and maintain, with the participation of affected tenants, the Facility Safety Plan (FSP) that includes the facility-level safety envelope and the facility's processes to ensure safe facility operations;
- provide a safe and compliant operating platform that enables technical work to be accomplished;
- approve FSPs;

- implement, with the participation of affected tenants, applicable institutional programs and expectations;
- provide feedback and contribute to establishing, improving, and changing the Laboratory's safety expectations at the facility and institutional levels;
- participate with tenants to negotiate tenant/facility agreements that define interrelationships and mechanisms for establishing and maintaining compatible activity- and facility-level safety envelopes; and
- assess the implementation and effectiveness of facility-level safety processes.

Facility owning division directors have authority, in accordance with established Laboratory criteria for authorization agreements (table 1), to require, establish, and modify using change control, facility-operating-limit safety envelopes for the facilities within their FMU. They have the authority to tailor facility safety management based on hazard. They have the right to be represented in the development of facility and institutional expectations that affect their work. They have the authority to review and approve or terminate activity-level programmatic work that is unsafe or may alter or otherwise exceed the limits of the facility safety plan or safety envelope.

Institutional Support. Institutional organizations support the safe conduct of Laboratory work at all levels. This includes staying informed and, as appropriate, assessing the effectiveness of institutional processes for supporting safety. These organizations include

- Laboratory Director's Office (DIR),
- Legal Council (LC),
- Laboratory Leadership Council (LLC),
- Operations Working Group (OWG),
- Resource Working Group (RWG),
- Environmental, Safety, and Health (ESH) Division,
- Facilities, Security, and Safeguards (FSS) Division,
- Business Operations (BUS) Division,
- Quality and Planning Office (QPO),
- Audits and Assessments Office, and
- Laboratory Safety Committees.

Their roles include

- ensure involvement of and open communications with the workforce and external stakeholders in safety matters;
- work with all affected organizations to establish, maintain, and communicate the institutional safety expectations;
- work with all affected organizations to establish, maintain, and monitor institutional safety and oversight programs; and
- work with all affected organizations to ensure the adequacy of resources for meeting institutional safety objectives. **Action 50**

In conjunction with affected organizations, institutional support organizations have the authority and shared responsibility, to establish and require safety expectations for the Laboratory. To this end, they provide and administer institutional processes and participate with appropriate stakeholders in establishing Laboratory-wide safety expectations. They also have the authority to review and provide feedback throughout the Laboratory regarding the effectiveness of safety operations.

Subcontractor Organizations. The Laboratory is ultimately responsible for the safety of all on-site subcontractor organizations. However, safety activities may be assigned to subcontractors by the contractual relationship. In such cases, the Laboratory exercises due diligence to ensure that subcontractors meet the conditions of their contractual safety obligations.

All on-site Laboratory subcontractors, including Johnson World Services Controls, Incorporated (JCI) and Protection Technologies of Los Alamos (PTLA) meet identical or equivalent safety expectations—including the guiding principles and core functions of ISM—as the Laboratory. Such wording is present in the language of all contracts let by the Laboratory. Laboratory employees who are responsible for writing statements-of-work, or who otherwise bring contractors to the Laboratory, work with the Business Operations Division (BUS) and ESH Division to ensure that this requirement is met.

C. INTEGRATED SAFETY MANAGEMENT PROCESSES

Introduction

This section identifies and provides a general description of the processes that support the five core functions (see section IIB) at the institution, facility, and activity levels. The discussion of processes is subdivided to address establishing safety expectations, implementing these expectations, and assuring safety performance.

Establishing Expectations

As defined previously, expectations broadly include standards, policies, requirements, laws and regulations, procedures, engineered and administrative controls and responsibilities that apply to the performance of work. Performance expectations can be institutional (Laboratory-wide), facility-, or activity-specific. Institutional expectations apply to all Laboratory facilities and all activities. Facility-specific expectations apply to all activities done within the boundaries of the applicable facility. Key principles for establishing expectations at all three levels are

- understand the work and its hazards;
- involve people doing the work, other subject matter experts, and appropriate stakeholders;
- incorporate, as appropriate, external standards; and
- comply with applicable laws and regulations.

Activity Level. At the activity level, scope-of-work may be narrowly defined to encompass only a specific task or generically defined to include a class of activities and/or hazards. The workforce establishes activity safety expectations and operating limits using the first three core functions: define the activity, identify and analyze associated hazards, and determine applicable expectations or controls. Line managers and/or supervisors authorize work only after the first three functions are completed. Line managers and supervisors must sufficiently know their employees' work to be satisfied the work is authorized and within their employees' competence. Formality, rigor, and the extent to which employees perform the three functions are determined by line management commensurate with the magnitude and or uncertainty of hazards. DOE may be involved in authorizing Laboratory work, if this is consistent with hazard criteria in the authorization agreement matrix discussed in the next section.

A variety of institutional, facility, and activity processes, commonly referred to as "safe work practices," are used define the work, analyze its hazards, identify the safety expectations required for authorization, and control the work. Line management, supervisors, and workers are responsible for using these safe work practice processes, as appropriate, to determine safety expectations and operating limits for their activities.

A list of current safe work practices used individually or jointly, as appropriate, for authorizing work and establishing activity-level safety expectations is given in appendix A. These include facility work control, safe-operating procedures, special work permits, etc.

Facility Level. All Laboratory space, including physical structures, and facilities are assigned to owning division directors and their FMUs. An FMU can include multiple facilities, buildings, other structures, and/or large areas of land. In some cases, several FMUs may be grouped into facility management zones to share necessary safety and maintenance resources.

Each FMU has a facility management team that provides the infrastructure, processes, and resources required to effectively support its unique needs. Additionally, for each facility or building within an FMU, the facility management team works with tenant organizations to establish facility-specific safety expectations. Facility expectations comprise defined limits, boundaries, and facility processes to ensure that the current safety capabilities of the facility (commonly referred to as the facility operating limits or safety envelope) are not exceeded. They also establish the requirements for interfaces among tenants, the facility management team, and support organizations.

The FSP is the primary mechanism to help facility managers (FMs) establish, document, and integrate facility-level expectations. **Action 27**

Establishing and documenting the FSP is the responsibility of the facility owner and is usually delegated, along with other facility management responsibilities, to the facility manager. Consistent with the process for establishing institutional expectations, establishing the FSP begins with understanding the work and its hazards; involves the people doing the work, subject matter experts, and appropriate stakeholders; is tailored to

the work; incorporates applicable external standards; and complies with applicable statutory requirements.

The FSP describes the collective work of an FMU (or facility, building, or other subset depending upon the hazards). Within the plan, the FM analyzes a facility's hazards and identifies facility-specific expectations and controls to effectively manage risks to workers, the public, the environment, and property (i.e., fulfills the first three core functions). The FSP contains a definition of the facility's safety envelope and a description of the facility's administrative and engineering controls. It includes and is consistent with institutional expectations (i.e., Laboratory performance requirement [LPR], Laboratory implementing requirement [LIR], and Laboratory implementing guidance [LIG]; Laboratory permit; and other institutional requirements). In addition to identifying facility expectations, the FSP also contains an acknowledgment of acceptable residual risks for the facility.

The FSP may be a single document with appropriate references or a compilation of other applicable documents such as facility procedures and manuals, safety analyses reports, facility permits, emergency plans, quality management plans, and/or conduct-of- operations plans. The level of detail of the work description, the rigor of hazard analyses, and the nature of required facility processes and controls in an FSP document are consistent with Laboratory criteria and commensurate with the magnitude of the hazards associated with the facility.

Table 1 is a matrix that defines hazard categories and identifies the minimum FSP requirements for facilities having activities that meet the hazard criteria. **Actions 26**

For nuclear or higher-hazard nonnuclear facilities, the FSP may include DOE-prescribed requirements such as final safety analysis reports (FSARs), technical safety requirements (TSRs), safety analysis documents (SADs), or unreviewed safety question determinations (USQD) programs. Alternatively, facilities having only lower hazard activities may have short FSPs that mainly reference institutional programs or a few facility-specific documents such as emergency evacuation plans.

In addition to establishing facility-level expectations, the FSP also addresses how the expectations are maintained and establishes mechanisms to ensure modification of the FSP, as appropriate, when work or hazards change. Maintaining expectations may include processes such as FM/tenant and FM/support agreements, surveillance requirements (SRs), change control, configuration management, and assessments. The FSP addresses the means for identifying changes in activities and/or facility conditions and associated hazards that could result a need to modify expectations established in the FSP. It may also address processes for allowing exemptions to the FSP or other changes based upon input by workers, experts, or stakeholders. For nuclear facilities, modification refers to the USQD process.

The formality, rigor, and extent to which a facility's work is defined, hazards are analyzed, and expectations are established are determined by the owning division director. **Action 27**

The determination must be consistent with the guidance in the activity hazard categories matrix (table 1) and commensurate with the magnitude and/or uncertainty of the hazards.

Place Table 1 - Activity Hazard Categories Matrix - here

This table is to be constructed as part of Action 26

A variety of facility-specific mechanisms and processes that fulfill safety functions for establishing, implementing, and assuring expectations may be incorporated by reference in the FSP. A list of current examples of mechanisms or processes that may be included individually or jointly, as appropriate, in the FSP is given in appendix A.

Except when covered by an agreement with a regulatory party (e.g., regulatory permits or authorization agreements discussed below), the FSP and referenced documents —but not institutional expectations—can be changed at the discretion of the owning division director. Proposed changes or interpretations are submitted in writing by any member of the workforce to the facility-owning director. Disagreements regarding the safety expectations in the FSP shall be resolved within the supervisory chains of the owning division director and the organization proposing the change. Ultimately, the facility owner has the authority to determine facility-specific requirements in the FSP consistent with Laboratory guidance. In addition to ongoing changes, the FSP and referenced documents shall be systematically reviewed and updated at least every three years by the owning division director or designee.

The majority of Laboratory work is authorized by the prime contract between UC and DOE. However, in some cases, the Laboratory and DOE mutually agree to special authorization agreements for certain facilities and/or activities. Such agreements specifically authorize work associated with these facilities and activities. The agreements between DOE and the Laboratory identify (sometimes by reference) the risks and associated mitigation measures required for authorization of the facility or activity. The Laboratory's facility-owning division director and the DOE determine the agreement parties and basis for the authorization agreements. Appendix B provides a list of facilities and operations that currently require authorization agreements. All other activities/facilities not contained in appendix C are authorized by the Laboratory pursuant to its approved ISM system.

Institutional level. Institutional expectations apply Laboratory-wide and are directed at the entire workforce. These expectations derive from statutory requirements, contractual agreements between UC and DOE, consensus standards, and Laboratory practices. Contractual safety agreements between UC and DOE are based upon standards identified jointly by DOE, the Laboratory, and as appropriate, by other stakeholders. The Laboratory commits to full compliance with all applicable federal, state, and local laws and to regulations and contractual obligations, unless formal relief is obtained from the cognizant agency.

Actions 5-18

At the institutional level, Laboratory-wide safety expectations are established using the DOE's Work Smart Standards process. The output of this process is a set of DOE/UC contractual work standards and Laboratory performance requirements for performance-based institutional expectations.

The contracted work standards are developed and approved by the Laboratory and DOE and are included, by reference, in the UC/DOE Contract. All LPRs include a statement of the institutional expectation and associated performance criteria. These are factored into the UC/DOE Contract Appendix-F performance measures used to evaluate the

Laboratory's work performance. Changes to the UC/DOE contractual set of work standards are subject to DOE (and possibly other stakeholder) negotiation and approval.

The LPRs provide the basis for more specific institutional expectations documented in mandatory Laboratory implementing requirements (LIRs) and discretionary Laboratory implementing guidance (LIGs). Incorporating more detailed expectations into LIRs and LIGs beyond those in the LPRs is based upon consideration of the following four criteria that help determine the need for institutional consistency: **Action 16**

- magnitude of risks,
- existence of explicit regulatory requirements,
- economy-of-scale and cost-effectiveness of implementation, and
- use by mobile populations.

LIRs and LIGs can be readily changed at the discretion of the Laboratory. Proposed changes or interpretations to institutional expectations (LPRs, LIRs, or LIGs) are submitted in writing by any member of the workforce to the Laboratory Standards Project for coordination with the appropriate office(s) of institutional coordination (OIC). An OIC is assigned by the Laboratory Standards Project for each LPR, LIR, and LIG. **Action 15**

Note that OICs may reside within support or science and technology organizations. Disagreements regarding institutional safety expectations shall be resolved within the supervisory chains of OIC and the organization proposing the change. If resolution is not reached before or at the division/office director level, the issue shall be presented to the OWG for final resolution. In addition to ongoing changes to institutional safety documents, LPRs, LIRs, and LIGs shall be systematically reviewed and updated at least every three years by the cognizant OIC. The process by which LPRs, LIRs, and LIGs are established or changed is currently managed by the Laboratory Standards Project within ES&H Division.

Exemptions to expectations in LIRs can be obtained for special circumstances when alternative measures are taken to provide sufficient protection. Requests and justification for exemptions are made in writing to the Laboratory Standards Project, which coordinates their disposition with the cognizant OIC. As with proposed changes, disagreements relating to exemptions shall be addressed by supervisory chains.

The official record and listing of institutional-level safety expectations exists electronically on the World Wide Web (WWW) under the Laboratory Policies and Procedures section of the Laboratory home page. A list of these documents is provided in appendix C. Individuals who use hard copies of LPRs, LIRs or LIGs are responsible for ensuring that they use the current version. The OIC will ensure that the most current version of a document is present on WWW and will communicate new and revised documents to potentially impacted organizations.

Implementing Expectations

Implementation involves the preparations and actions necessary to integrate and incorporate applicable expectations into work and requires performing work safely in accordance with established activity, facility, and institutional expectations. Implementation involves executing the third and fourth core safety functions: identifying/implementing necessary safety expectations and then performing the work. To make expectations part of an activity, supervisors must ensure that workers are competent in requisite knowledge and skills, that necessary tools and equipment are provided, and that adequate communication and interactions are established among involved workers.

People doing the work implement safety expectations. Safe work practices identify and establish the activity-level safety expectations. As shown in figure 4, the activity-level safety functions include identification and implementation of applicable facility and institution-level expectations along with those established specifically for the activity.

Actions must be taken to ensure that new or revised facility and institutional expectations are known and incorporated, as appropriate, into work. Each potentially affected organization must determine the following and take appropriate action.

- applicability of the expectations to their work;
- their current status relative to applicable expectations;
- competence requirements (personnel qualifications, initial or ongoing training, or other skills);
- need to revise safety documents; and
- engineered and administrative controls.

Line managers monitor implementation as part of their self-assessment process. Implementation also involves confirming readiness to ensure that all necessary actions are completed prior to performing work. Depending upon the hazards confirming may range from relatively informal walkdowns by appropriate members of the supervisory chain to formal readiness assessments performed jointly with DOE. In the latter cases, these readiness assessments are defined in the authorization agreement.

Ensuring Performance

The objective of the fifth core function, ensure performance, is to ensure that work is safely and effectively performed to expectations. Ensuring performance involves collecting feedback information, identifying improvement opportunities, making changes to improve, and reinforcing behavior. It may be accomplished through mechanisms, such as performance assessments, audits, workplace observations, and performance measurements. These mechanisms also include processes to ensure performance data are analyzed and lessons learned are shared with other Laboratory organizations. The Laboratory monitors its work, assesses the results, and identifies and implements needed improvements at the activity, facility, and institutional levels to ensure that work performance meets expectations.

Line management observes the activities of their workforce to ensure they meet activity, facility, and institutional expectations. This includes assessing results, identifying process improvements, taking effective corrective actions, and sharing lessons learned.

Owning facility directors ensure that work within their facility meets facility and institutional expectations. **Actions 22,23,27**

OICs, such as the Radiation Protection Office, monitor institutional-level expectations across the site, assess results, identify program improvements, take corrective actions, encourage continual improvement, share lessons learned, and report issues and program status to appropriate management

Independent organizations, such as the Audits and Assessments Office, help ensure performance by assessing OICs, facilities, and line organizations for performance relative to institutional expectations (including performance assurance expectations), analyzing results, identifying improvements, and reporting results to appropriate management.

Assessing results

Assessments are done by line management, facility owners, safety OICs, and the Audits and Assessments Office as indicated in figure 7. Assessments are based upon specific measures selected by and tailored to meet the needs of the assessing organization. These measures relate to implementation of expectations, corrective actions, occurrences, and other performance indicators. Assessment results are documented and reported to the cognizant line managers who take appropriate corrective actions.

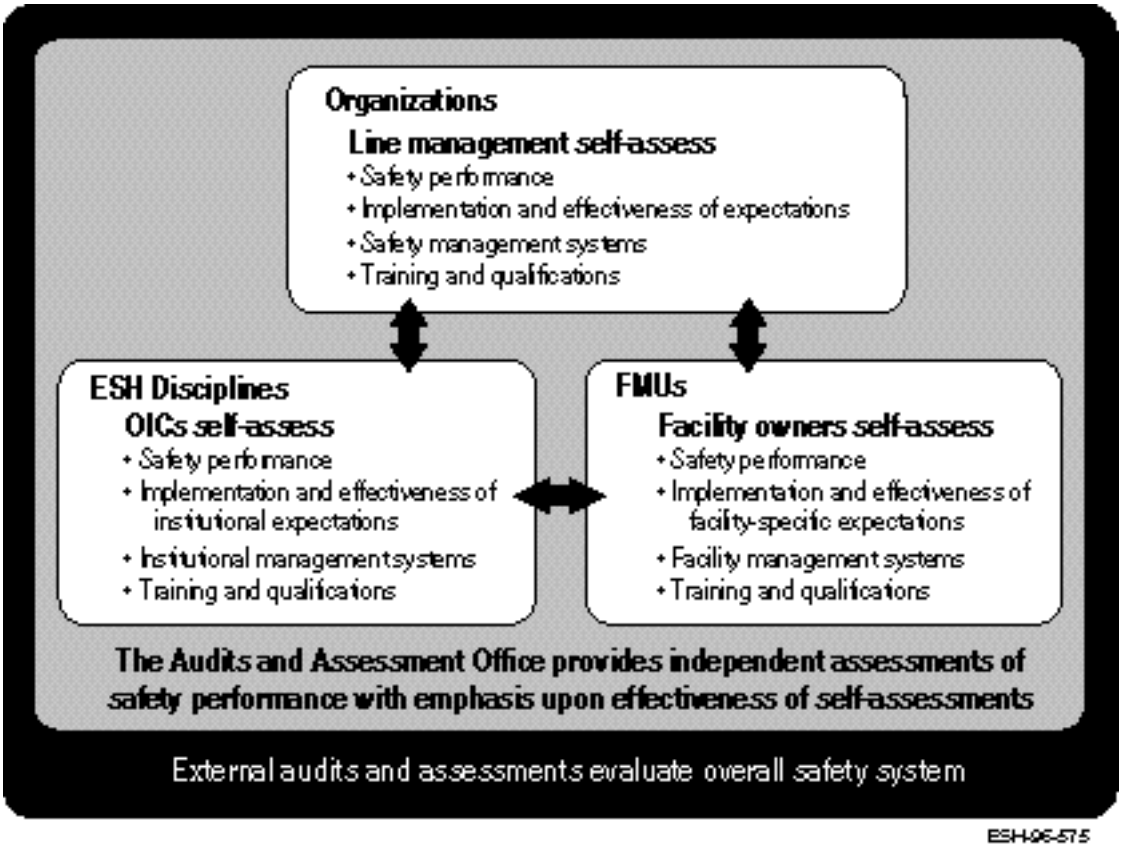

Figure 7. Assessments

Line management is ultimately responsible for safety and conducts self-assessments to ensure that their organizations meet facility and activity safety expectations. Line management assessment processes include management walkarounds to enhance workplace safety by maintaining first-hand knowledge of operations and visibly demonstrating commitment. Management is responsible for tailoring their assessments to meet their organization's needs. Managers are responsible both for meeting and knowing that they meet safety expectations. Line management self-assessments reinforce good practice and lead to correction of issues and improvement of processes and behaviors.

Owning division directors are responsible for ensuring that expectations established in an FSP are appropriate and met. Facility assessments are designed to meet the individual needs of the facility. Line and facility assessments are coordinated within a facility to avoid duplication.

Actions 41–43

Line management, facility management and safety organizations, safety committees, and the Audits and Assessments Office conduct assessments. Their objectives are to understand the behaviors and processes that support safety performance measures. The assessment process helps preclude major unexpected safety occurrences by enabling continuous safety improvement and showing when corrective actions are needed.

Safety discipline assessments (e.g., radiation protection, industrial hygiene) evaluate the implementation and effectiveness of institutional expectations. Normally, safety discipline assessments include observations by deployed personnel and the results of line and facility assessments. These assessments are coordinated with line and facility assessments to avoid duplication.

The Audits and Assessments Office provides independent performance-based assessments of Laboratory issues, programs, and organizations, which emphasize evaluation of the effectiveness and validity of line management, facility, and safety discipline assessments. The Audits and Assessments Office uses a risk-based method to select topics for coverage. The office's assessment teams are independent from the assessed organizations and report their results to the Laboratory Director.

In addition to internal Laboratory assessments, DOE, New Mexico Environmental Division, and other regulatory authorities provide safety oversight of the Laboratory. This oversight includes routine on-site DOE representatives and periodic audits/reviews. The UC ES&H Advisory Panel and the external ESH Division Review Committee also provide safety oversight. Laboratory self-assessment results are ordinarily provided to DOE and other external reviewers, as appropriate.

Performance Measures

Performance measures provide agreed-upon objectives, measures, and targets for safety performance. The highest level Laboratory performance measures are those defined jointly by the Laboratory, UC, and DOE as Appendix F in the UC/DOE contract.

Success in achieving the objectives defined by the Appendix-F performance measures depends upon the effectiveness and implementation of the expectations established at the activity, facility, and institutional levels. **Action 47**

As an important assessment of the Laboratory's performance, LLC performs quarterly reviews of the status of individual organizations and facilities relative to Appendix-F performance measures. These reviews provide the basis for follow-up actions taken by management to improve safety performance and meet the targets established in the measures. **Action 38, 39**

Laboratory representatives also meet quarterly with UC and DOE to discuss the Laboratory's performance relative to the Appendix-F performance measures and to discuss any related issues and trends. Annually, the Laboratory, UC, and DOE develop comprehensive assessments of the Laboratory's performance relative to the performance measures.

Issues Management and Corrective Actions

The Laboratory maintains issues management and corrective processes to ensure that important issues (internal/external) are captured and resolved. **Actions 44–46**

This includes evaluating and prioritizing the issues, assigning the issues for resolution, tracking the corrective actions to completion, verifying that the completed actions resolved the issue and communicating lessons learned. Line management is ultimately responsible for tracing and correcting all safety issues. Support and facility management may track and correct issues relating to institutional and facility levels. Issues are prioritized and resources allocated for corrective actions based upon formal or informal cost/risk/benefit analyses. Issues management and corrective actions are evaluated as part of Laboratory assessments.

Behavioral Safety

Behavioral safety refers to mechanisms that relate to personal accountability, positive and negative reinforcement, and perceptions that influence workforce behaviors. Traditional aspects of behavioral safety include employee performance appraisals, accountability, awards programs, and disciplinary actions. In the past decade, the term has been expanded to include other mechanisms for fostering safe behavior such as peer (worker-to-worker) safety assessment and systematic analyses of behavior precursors such as perceptions and reinforcing antecedents. **Actions 52**

All members of the workforce are held accountable by their supervisors and managers for meeting and helping their coworkers meet the Laboratory's safety expectations. In particular, line managers and supervisors are accountable for having effective processes in place to establish, implement, measure, and reinforce safety expectations. **Action 39**

Accountability includes both the positive reinforcement of employees who meet safety expectations and also negative reinforcement, including disciplinary actions, for those who do not. Positive reinforcement ranges from verbal acknowledgment to monetary rewards for positive safety behaviors. The Laboratory uses progressive discipline to correct behaviors that are not consistent with Laboratory expectations. The Laboratory's disciplinary policy is documented in the Administrative Manual as AM 112. Additionally, the Laboratory has adopted the accountability matrix for poor safety performance (figure 8) to guide appropriate disciplinary actions for both supervisors and other members of the workforce.

Place Figure 8. Accountability Matrix here

III. Safety Resource Allocation

Laboratory program and line management are responsible for planning work and for ensuring that expectations for safe work are incorporated into all work plans and addressed in the resource prioritization and allocation. The Laboratory funds safety functions through a mixture of general and administrative (G&A) and direct mechanisms. Institutional safety functions are funded by G&A overhead allocations usually made to the Laboratory infrastructure and support divisions. Safety functions specific to a given facility or programmatic activity are funded either directly by a program or by collection of a recharge, organizational support, or other internal taxation mechanism.

Annually, G&A budget requests for institutional safety functions are prepared by the cognizant institutional support organizations. These requests cover core institutional safety activities such as the Laboratory Standards Project Office and sitewide environmental permitting. Budget requests and priority justifications are reviewed by a team comprising program and line managers. The team considers the costs, risks, and benefits of activities covered by requests. Based upon this review, the team prioritizes the requests along with other ongoing safety expenditures and recommends to the Director's Office G&A allocations for institutional safety functions. Line and program managers are responsible for providing funds other than G&A for safety functions required at their facility and activity levels. This is consistent with their safety responsibility and promotes line ownership, cost effectiveness, and customer focus by the support organizations. **Action 52,53**

The changing programmatic environment requires flexible customer-driven deployment of safety staffing to the field in support of activity and facility-specific safety functions. To meet this need, mechanisms for effective load-leveling, including deployable worker pools, flexible funding, and contractor arrangements are established and used by Laboratory management. Effective integration of safety into work requires all program and line managers to plan explicitly for safety in their annual budget cycle and for on-going resource management, including prioritization. Safety resource planning and resource allocations by line management are based upon systematic needs analysis done jointly by the line and support organizations. Long-term planning of core institutional safety functions and staffing is also essential due to the broad mix of safety challenges at the Laboratory. **Action 51**

At the request of DOE, the Laboratory prepares and annually updates, as coordinated by ESH Division, the *ES&H Management Plan.* This five-year planning document covers projected tasks, milestones, and costs associated with managing risks and achieving safety expectations. The document includes budget forecasts for core institutional safety activities, planned compliance, and unfunded compliance/improvement items in both the G&A and direct budget categories.

APPENDICES

Appendix A
Current Safe Work Practices and Facility Documents

The following is a list of current safe work practices used individually or jointly, as appropriate, for authorizing work and establishing activity-level safety expectations.

- Facility Work Control— enhanced work planning process usually associated with facility-controlled structures, systems, or components to define the scope of activities and coordinate its planning, hazard analysis, and actual work conduct.
- Safe Operating Procedure (SOP)— defines the scope of routine activities, discusses its hazards, and identifies necessary controls.
- Special Work Permit (SWP)—defines the scope of nonroutine activities, discusses its hazards, and identifies necessary controls. Examples of SWPs include radiation work permits (RWPs), excavation permits, and SWP for Spark-/Flame-Producing Operations.
- Organization-specific requirement—identifies expectations established by a specific division, group, or other organization.
- Experimental plan— developed by research teams to define the scope of work, hazards, and controls for a research activity.
- Engineering design review—used to identify and evaluate engineered configuration and controls.
- Health and safety plan (HASP)— used mainly by Laboratory contractors to define the scope of activities and coordinate its planning, hazard analysis, and actual work conduct.
- Hazard analyses (HA)—used by JCI, the Laboratory's major crafts contractor, and the Laboratory to define the scope of activities, discuss its hazards, and identify necessary controls.
- ES&H Identification (ESH-ID) Process— used to define the scope of work, analyze hazards, and identify controls for relatively major construction, facility modifications, or new Laboratory programs. Emphasizes the identification of controls, applicable permits, and requirements relating to NESHAPS, RCRA, NEPA, or other environmental laws.
- Facility manager/tenant agreement
- Facility manager/support agreement; and
- Line manager/support agreements.
- Facility-level processes for implementing LPRs for facility
- Facility-related documents
- Facility implementing requirements and/or guidance— identifies facility-specific expectations and processes
- Facility work control— usually associated with facility-controlled structures, systems, or equipment work to define the scope of activities and coordinate its planning, hazard analysis, and actual work conduct
- Emergency preparedness plan—identifies facility/building hazards and addresses emergency readiness and response
- Facility-specific permit, e.g., NPDES, NESHAPS, NEPA

- Configuration management/change control processes for managing changes to operations, including engineered and administrative controls
- Maintenance management plan— identifies maintenance and surveillance requirements for safety-class and safety-significant controls
- Quality management plan— identifies systems for effectively managing work
- Authorization basis document—DOE-prescribed documents for identifying the work at a facility, its hazards, and required controls
- Facility manager/tenant agreement—identifies FM/tenant operating boundaries and interactions required to maintain the facility safety envelope
- Facility manager/support agreement—establishes the number, type, and roles of support personnel that are deployed from the institutional support organizations to the FMUs
- Line manager/support agreement— establishes the number, type, and roles of support personnel that are deployed from the institutional support organizations to line organizations

Appendix B
Authorization Agreement List

Chemistry and Metallurgy Research (CMR) Facility (TA-3-29)
Weapons Engineering Tritium Facility (WETF) (TA-16-450)
Appaloosa Project
Tritium Science and Fabrication Facility (TSFF) (TA-21-209)
Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility (TA-50-37)
Plutonium Facility (TA-55-4)
Los Alamos Neutron Scattering Science Center (LANSCE) (TA-53) SAD
Los Alamos Critical Experiment Facility (LACEF) and Hillside Vault (TA-18)
Radioactive Liquid Waste Treatment Facility (TA-50-1)
Waste Characterization Reduction and Repackaging Facility (TA-50-69)
Waste Storage and Disposal Facility (TA-54-G)
Transuranic Waste Inspectable Storage Project (TWISP) (TA-54)
Explosives Facilities (DX and ESA)
SWISH (WWTF at TA-46)
PTLA Firing Site
Radioactive Analysis and Nondestructive Testing (RANT) (TA-54 West)
Tritium Systems Test Assembly (TSTA) (TA-21)

Appendix C

Institutional ES&H Documents

Index by Document Number

These policy documents are those in effect at the time of this report's publication ; however, some may currently be in the process of being revised or deleted. If you have any questions about any of the documents, please contact the organization listed in the document.

Number Title

AR 1-1 Accident and Occurrence Reporting
AR 1-2 Emergency Preparedness
AR 1-3 Standard Operating Procedures and Special Work Permits
AR 1-4 Environment, Safety, and Health Training
AR 1-5 Environment, Safety, and Health Audits and Appraisals
AR 1-6 Safety Analysis and Review System
AR 1-8 Working Alone
AR 1-9 Hazard Communication
AR 1-10 Environment, Safety, and Health Questionnaire
AR 1-11 Work Request Review
AR 1-12 Excavation or Fill Permit Review
AR 1-14 Environment, Safety, and Health Facility Design Review
AR 2-1 Occupational Medicine Program
AR 3-4 Radioactive Source Control
AR 3-5 Shipment of Radioactive Materials
AR 5-1 Radio-Frequency/Microwave (RFMW) Radiation and Fields (3 kHz to 300 GHz)
AR 5-2 Lasers
AR 5-3 Static Magnetic Fields
AR 6-1 Chemicals
AR 6-2 Workplace Monitoring for Chemical, Physical, and Biological Hazards
AR 6-4 Biological Monitoring for Hazardous Materials
AR 6-5 Flammable and Combustible Liquids
AR 6-6 Explosives
AR 6-7 Beryllium
AR 6-9 Safe Handling of Hazardous Gases
AR 6-10 Asbestos (November 1, 1993)
AR 7-1 Electrical Safety
AR 8-1 Confined Spaces
AR 8-2 Hearing Conservation
AR 8-3 Ventilation
AR 8-4 Welding, Cutting, and Other Spark-/Flame-Producing Operations

AR 8-5 Staff Shop Safety
AR 8-7 Landlords and Building Managers
AR 9-2 National Environmental Policy Act (NEPA) Documentation
AR 9-3 Water Supply and Distribution Systems
AR 9-4 Accidental Oil, Chemical, and Airborne Releases
AR 9-5 Cultural Resources
AR 9-6 Water Pollution Control
AR 10-1 Radioactive Liquid Waste
AR 10-2 Low-Level Radioactive Solid Waste
AR 10-3 Hazardous and Mixed Waste
AR 10-4 Polychlorinated Biphenyls
AR 10-5 Transuranic (TRU) Solid Waste
AR 10-6 Excess Government Personal Property
AR 10-7 Managing Infectious Waste
AR 10-8 Waste Minimization
AR 10-9 Waste Profile Form
AR 11-1 Exits and Fire Doors
AR 11-2 Fire Protection
AR 12-1 Personal Protective Equipment
AR 12-2 Seat Belts
AR 13-1 Fork Lifts and Powered Industrial Trucks
AR 13-2 Cranes, Hoists, Lifting Devices, and Rigging
AR 14-1 Pressure Systems Including Compressed Gas Systems
AR 15-1 Field Work

DP 101 ES&H Operating Policy
DP 102 Formality of Operations
DP 103 Environment, Safety, and Health
DP 104 Environmental Protection and Restoration
DP 105 Hazardous & Radioactive Waste Management & Minimization
DP 106 Occupational Health and Safety Management
DP 107 Radiological Protection
DP 108 Nuclear Facility/Reactor Safety
DP 109 Emergency Management
DP 110 Quality
DP 111 Assessments and Audits
DP 112 Configuration Management
DP 113 Training
DP 114 Operational Risk Management
DP 115 Records Management and Document control
DP 116 Stop Work and Restart
DP 117 Packaging and Transportation
DP 118 Fire Protection
DP 119 Occupational Medicine
DP 120 Occurrence Reporting I
DP 121 Maintenance

DP 122 Public Participation
DP 123 Safeguards and Security
DP 124 LANL Director's Policy for Facility Management

LM101-01 Environment, Safety and Health
LM107-01 LANL Radiological Control Manual (Open manual to access documents by chapter titles)
LM107-02 Radiation Protection Program Documents
- LP107-01.0 Notification and Reporting of Radiological Incidents
- LP107-02.1 Handling Radiological Work Permits
- LP107-03.0 Requesting Deviations from LANL Radiological Control Manual "Should Provisions"
- LP107-04.0 Documenting Equipment and Item Removal
- LP107-12.1 Reviewing Radiological Engineering Designs
- LP107-13.0 ALARA Reviews of Radiological Designs
- LS107-01.0 Accelerator Access-Control Systems
- LS107-02.2 Radiological Posting
- LS107-03.0 X-Ray-Generating Devices
- LS107-05.0 Radiological Performance Goals Program
- LS107-08.0 Radiological Administrative Control Levels
- LS107-09.0 Radiological Protective Clothing
- LS107-11.1 Radiation Dosimetry Monitoring
- PED107-01.0 Occupational ALARA Program

LM118-01 Fire Protection Program

LP106-01.2 Lockout/Tagout for Control of Hazardous Energy Sources for Personnel Safety (Red Lock Procedure)
LP106-02.1 Lockout/Tagout for Control of Equipment and Systems Status (Blue Lock Procedure)
LP106-03.0 Tagout for Removing Unsafe Equipment from Service
LP107-04.1 Releasing Materials and Equipment
LP107-09.0 ALARA Reviews of Radiological Jobs
LP107-09.1 Formal ALARA Review Determination
LP107-09.2 Formal ALARA Review Checklist
LP107-09.3 Pre-Job Briefing Summary
LP107-09.4 Job Progress ALARA Review
LP107-09.5 Post-Job ALARA Review
LP107-14.0 Employee ALARA Suggestion Program
LP107-15.0 ALARA Program Assessment
LP107-16.0 Optimizing ALARA Protection Measures (APMs)
LP107-18.0 Planning and Documenting "Planned Special Exposures"
LP110-01.0 Suspect/Counterfeit Fasteners: Identification, Removal, and Disposal
LP115-12.0 Administration of Controlled Documents
LP116-01.0 Stop Work and Restart

LS104-01.0 Air Pollution Control

LS105-01.0 Waste Management Coordinator Program
LS105-05.0 Removing Waste from Radiological Controlled Areas
LS106-01.0 Chemical Hygiene Plan
LS106-03.0 Carcinogen Use
LS106-05.1 Cryogenic Fluids or Cryogens
LS106-15.0 Subradiofrequency Electric and Magnetic Fields
LS107-19.0 Fetal Radiation Protection
LS113-01.0 LIST: Layer for Instructional Systems for Training
LS113-08.0 Acquiring Vendor Training
LS113-12.0 LANL Worker Qualification/Certification
LS113-13.0 On-The-Job Training
LS113-14.0 Test Development
LS113-15.0 Training Staff Qualification/Certification
LS114-01.0 Unreviewed Safety Question Determination
LS114-01.0 A Unreviewed Safety Question Determination Process Flow Diagram
LS114-02.0 Technical Safety Requirements Implementing Document
LS114-03.0 Technical Safety Requirements Implementing Guidance Document
LS120-01.1 Occurrence Investigation and Reporting
LS121-01.1 Categorization of Systems & Equipment via the Graded Approach III

PED108-04.0 Tritium Operations Safety Committee
PED114-05.0 Technical Safety Requirements

PRD102-02.0 Conduct of Operations Program
PRD108-01.0 Nuclear Criticality Safety
PRD110-01.0 Quality Assurance Management Plan
PRD112-01.0 Configuration Management
PRD115-01.0 Document Control
PRD115-02.0 Records Management
PRD120-01.0 Occurrence Investigating and Reporting Program
PRD121-01.0 Maintenance Management

TB 101 Emergency Preparedness
TB 303 Leak-Testing Radioactive Sources
TB 401 Nuclear Criticality Safety
TB 501 Laser Safety
TB 602 Flammable Gases
TB 603 Solvents
TB 604 Epoxies
TB 607 Beryllium
TB 701 Electrical Safety
TB 1001 Radioactive Liquid Waste Collection System
TB 1002 Radioactive Liquid Waste Treatment and Disposal
TB 1101 Fire Extinguishers
TB 1101 Fire Extinguishers
TB 1201 Eye and Face Protection

TB 1202 Protective Clothing
TB 1203 Respiratory Protective Equipment
TB 1402 Compressed Gases
TB 1403 Gaseous and Liquid Hydrogen
TB 1404 Inspection and Testing of Pressure Systems

Appendix D

Acronyms

BUS—LANL Business Operations Division
DIR— the LANL Director's Office. The Laboratory Director is the senior Laboratory official.
DOE—United States Department of Energy
ESH—Environment, Safety, and Health Division
FM—Facility Manager. An individual appointed by a knowing division director to manage an FMU.
FMU—Facility Management Unit. The Laboratory is subdivided into a number of facilities based largely on geographic locale to provide more effective administration of risk and support services.
FSAR—Final Safety Analysis Report, required for DOE nuclear facilities.
FSP— Facility Safety Plan,
FSS—LANL Facilities, Security and Safeguards Division
G&A—General and Administrative. The principal overhead, indirect cost account funding of Laboratory support activities.
ISM—Integrated Safety Management. The principal safety management framework for LANL and DOE.
JCI—Johnson World Services Controls, Incorporated. LANL's primary support services contractor.
LAAO—the DOE's Los Alamos Area Office.
LANL— Los Alamos National Laboratory. A DOE Laboratory operated by the University of California.
LC—LANL Office of Legal Council
LIG—Laboratory implementing guidance. Nonmandatory guidance on how to meet Laboratory requirements.
LIR— Laboratory implementing requirement. Mandatory requirements for implementing the array of Laboratory performance requirements.
LLC—Laboratory Leadership Council, the LANL senior management group composed of the Director's Office, division and program directors, and certain office, DOE, and subcontractor representatives.
LPR— Laboratory performance requirement. Lab-wide requirements that govern the conduct of specific types of work.
M&O—Management and operations. The type of contract under which the University of California operates LANL for DOE.
OIC— Office of Institutional Coordination. Offices assigned to coordinate Lab-wide response to external requirements.
OWG—Operations Working Group. A subgroup of the LLC that focuses on safety and operational issues of the Laboratory.
PTLA—Protection Technology of Los Alamos. The primary security services contractor to LANL.
QP—LANL Quality and Planning Office

R&D— Research and Development
RWG—LANL Resource Working Group. A subgroup of the LLC that focuses on fiscal and manpower issues of the Laboratory.
SAD—Safety Analysis Document. A document required by DOE for certain classes of facilities.
SAR— Safety Analysis Report.
SR—Surveillance requirements. Monitoring activities required in nuclear and high-hazard facilities.
TA—Technical area. A geographic subdivision of the Laboratory.
TSR—Technical safety requirement. Operating conditions required in nuclear and high-hazard facilities.
UC—University of California. The institution that operates LANL for DOE.
USQD—Unreviewed Safety Question Determination. A process that addresses safety issues at specified nuclear facilities.
WWW, WEB—World Wide Web. A computer-based information resource.